New Corn Highly Resistant to Aflatoxin

A new corn line from ARS is the best yet at naturally fending off aflatoxin, a fungal toxin that can be a threat to food and feed safety. Commercial corn hybrids with strong aflatoxin resistance are not now available. But as an important step toward this goal, ARS released the new line, named Mp715, to seed companies and public research institutions. In field tests, Mp715 had lower levels of both fungal infection and aflatoxin contamination. Both qualities likely represent the most efficient and reliable way to reduce aflatoxin in corn grain.

The ARS researchers are attempting to identify the genes responsible. Under cooperative research and development agreements, ARS scientists plan to evaluate 75 to 100 hybrids from the breeding programs of two seed companies this summer. Some companies have already incorporated in their breeding programs toxin-resistant germplasm that ARS released earlier.

Aflatoxin is produced by certain species of *Aspergillus* fungi. Last year, corn aflatoxin levels soared in parts of the South because of record heat and drought. Growers in Texas, Louisiana, and Mississippi experienced losses estimated at $85 million to $100 million. *W. Paul Williams, USDA-ARS Corn Host Plant Resistance Research Unit, Mississippi State, Mississippi; phone (601) 325-2735, e-mail pwilliams@dorman.msstate.edu.*

Genetic Test Readied for Pig Disease

A faster, more reliable test may be on the way for a pig disease that costs U.S. pork producers $17 million in lost weight and delays to market. Two toxin-producing bacteria, *Bordetella bronchiseptica* and *Pasteurella multocida,* are the culprits in atrophic rhinitis. Current diagnostic methods take 5 to 7 days and aren't always reliable. The new test takes 3 days. Since the disease spreads quickly in swine confinement houses, detecting the bacteria sooner could cut losses.

The new test uses probes made from genetic material of the two bacteria. The probes target genes found only in one or the other of the two microbes in samples taken from swine. For the test, bacteria cultured from nasal or tonsil swabs from a live pig are placed on a thin nylon sheet, which is subsequently treated with the probes. If *B. bronchiseptica* is present, a pink color will appear; if *P. multocida,* purple. *Karen B. Register, USDA-ARS National Animal Disease Center, Ames, Iowa; phone (515) 239-8275, e-mail kregiste@nadc.ars.usda.gov.*

Enzyme Discovery May Help Plants and People

In plants and people, porphyrins are crucial natural pigments—but troublesome if present in excess. In plants, porphyrins are precursors of chlorophylls important to photosynthesis. In animals, including humans, porphyrins carry oxygen through the blood. Recently, researchers with ARS and Dartmouth Medical School found out how some plants may regulate porphyrins. They also discovered a natural plant enzyme that deactivates these molecules. The findings could someday lead to protection for people as well as crops.

In plants, chlorophylls convert the sun's light into food. Some herbicides kill weeds by disrupting the manufacture of chlorophyll. Porphyrins then accumulate to high levels, making the weeds fatally hypersensitive to light. But such herbicides may also damage crops in the same field. A potential solution: develop crops with high levels of the deactivating enzyme.

The discovery may also lead to new ways to treat porphyria. In people with this genetic disease, cells don't properly turn porphyrins into heme, the deep-red, iron-rich component of hemoglobin. Adverse effects can include weakness, nausea, skin rash, and hypersensitivity to light. *Franck E. Dayan, USDA-ARS Natural Products Utilization Research Unit, Oxford, Mississippi; phone (601) 232-1039, e-mail fdayan@ag.gov.*

Scientists Bullish on Peanuts—for Goats

A recent study done for USDA's Agricultural Marketing Service shows goat meat stands to pick up in the marketplace because of the United States' increasing cultural diversity. Now, scientists have found that forage peanuts could make a nutritious fall pasture for goats in many areas of the Gulf Coast region. For goats, the plants aren't grown for their nuts, but for nutrients in their leaves. Scientists with ARS and Georgia's Fort Valley State University used near infrared spectrometry to show that forage peanut plants are about equal to alfalfa—the usual goat forage—in nutritional value. In fact, goats may actually prefer peanut plants to alfalfa during the fall breeding season. The results suggest that setting aside some peanuts for pasture might be a profitable option. Fort Valley State operates a comprehensive program to develop profitable year-round goat grazing systems. *William R. Windham, USDA-ARS Richard B. Russell Agricultural Research Center, Athens, Georgia; phone (706) 546-3513, e-mail bobw@athens.net.*

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